

U.S. Patent Application No. 10/083,657  
Amendment dated August 3, 2005  
Reply to Office Action of May 4, 2005

**REMARKS/ARGUMENTS**

Reconsideration and continued examination of the above-identified application are respectfully requested.

Claims 15 - 19, 22, 26, 30, 32 and 34 are amended and claim 24 is canceled. The amendment to the claims further defines what the applicants regard as the invention. In particular, independent claims 15, 30, and 34 are amended to provide the step of replacing the first milling media with the second milling media. Full support for the amendment can be found throughout the present application, including the claims as originally filed and the present specification at pages 13 - 15 and in the examples. Claims 15 - 19, 22, 30, 32 and 34 are further amended for clarity and consistency. Accordingly, no questions of new matter should arise and entry of this amendment is respectfully requested.

**Provisional rejection of claims 15 - 17, 19, 20, 24, 30 - 37 under the judicially created doctrine of obviousness-type double patenting over claims 181 - 189 of U.S. Patent Application No. 10/848,970**

At page 3 of the Office Action, claims 15 - 17, 19, 20, 24, 30 - 37 were provisionally rejected under the judicially created doctrine of obviousness-type double patenting over claims 181 - 189 of U.S. Patent Application No. 10/848,970. For the following reasons, this rejection is respectfully traversed. The applicants note the Examiner's comments and respectfully submit that this is a provisional rejection. The M.P.E.P. does state that when this is the only issue remaining, the provisional rejection should be withdrawn and a patent should issue, and then it is proper to

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raise this rejection, if still applicable, in the other pending application.

**Rejection of claims 15 - 17, 19, 20, 24, and 30 - 37 under 35 U.S.C. §103(a) over Mehltreter  
or Hill in view of Atkins or '816 (British)**

Also at page 3 of the Office Action, claims 15 - 17, 19, 20, 24, and 30 - 37 were rejected under 35 U.S.C. §103(a) over either Mehltreter (U.S. Patent No. 4,887,773) or Hill (U.S. Patent No. 4,205,964) in view of Atkins (U.S. Patent No. 1,125,921) or GB 2 134 816 ('816 (British)). The Examiner alleges that the main references disclose that it is known to mill niobium in a ball mill and notes that the references do not describe using milling media of different sizes. The Examiner alleges that this is an inefficient way of milling material. The Examiner alleges that in order to efficiently mill material, it would have been obvious to modify either Mehltreter or Hill by providing several sizes of media, as allegedly taught by Atkins and the British patent. The Examiner further alleges that any other limitations do not solve any stated problems and thus do not present patentable subject matter. For the following reasons, this rejection is respectfully traversed.

Independent claims 15, 30, and 34 recite a method of milling material whereby material is milled with a first milling media having a first size, and then the first milling material is replaced with a second milling media having a size smaller than said first size. Milling is then carried out on the material with the second milling media. In claim 15, the material that is milled comprises a getter material, a starting niobium oxide, an oxygen reduced niobium oxide, or combinations thereof. As discussed in the present specification, for example, at page 15 beginning at line 8, the

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present invention provides not only an efficient milling process, but also can provide for a narrower particle distribution in the milled material.

The features of the present invention are neither taught nor suggested by the applied references, either singly or in combination. As acknowledged by the Examiner, Mehlretter and Hill do not show milling with a first milling media having a first size and then milling with a second milling media having a second size. Atkins and the British patent do not teach or suggest any method wherein a first milling material is replaced with a second milling media having a size smaller than said first size as required by amended independent claims 15, 30, and 34. Rather, both Atkins and the British patent show a milling or comminuting apparatus having different chambers or compartments. As a product is milled or comminuted, it moves through the different chambers or compartments, which can have milling media of progressively smaller sizes.

Although both Atkins and the British patent allege that their respective processes achieve greater efficiency, there is no teaching or suggestion that the respective processes achieve a narrower particle distribution, which can be an advantage achieved in the present invention by the ability to select an appropriate second milling media size at the time that the first milling media is replaced by the second milling media. In both Atkins and the British patent, even in embodiments that describe milling media of different sizes, the milling media are already pre-loaded in the milling apparatus at the beginning of the process and are not replaced as the milling proceeds. Accordingly, the apparatus of Atkins and the British patent would not allow one to select a second milling media during the milling process to achieve a narrower particle distribution. Moreover, as can be readily seen in the drawings of the apparatus used in Atkins and

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the British patent, respectively, there is not likely to be uniformity of milling of the material to be milled, since an amount of material may be present in each of the chambers or compartments and subjected to different milling processes at any one time. Some material would spend more time in a particular chamber or compartment than other material would. Accordingly, the apparatus used in Atkins and the British patent, respectively, would not be expected to provide a narrower particle distribution for this additional reason. Moreover, it would not be obvious to modify Atkins or the British patent in any way to achieve a narrower particle distribution, since, unlike in the present specification, there is no teaching or suggestion in Atkins or the British patent, or in Hill or Mehlretter, that a narrow size distribution is a desirable trait for a milled material. Thus, even if one skilled in the art was capable of modifying the primary or main references with Atkins or the British patent, one, at best, would use a pre-loaded milling media of different sizes in the mill and there would be no replacement of the milling media during milling as recited in the present application.

With regard to dependent claims 16 - 20, and 31 - 33, and 35 - 37, it is respectfully submitted that none of the additional limitations contained in those claims is taught or suggested by any of the applied references. The Examiner's allegation that the additional limitations do not solve any stated problems not only is an erroneous interpretation of, or is irrelevant to the requirements of obviousness under 35 U.S.C. §103(a), but also is factually inaccurate. In particular, the recitations that specify the material size in comparison to the media size and the recitations that specify media size when the material is milled to a particular degree are nowhere taught or suggested by the applied references. These recitations provide further improvements to

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achieving a narrowness of the size distribution of the milled material, as described in the specification at, for example, page 15 and elsewhere. The Examiner's acknowledgement that claims 18 and 22 would be allowable if rewritten as independent claims is noted and appreciated. As a separate argument for patentability of claims 31, 32, and 36, it is respectfully submitted that none of the references applied by the Examiner teaches or suggests a method of milling niobium, niobium hydride, niobium pentoxide, an oxygen reduced niobium oxide, or combinations thereof, wherein surfaces of the mill comprise niobium or an alloy thereof, an oxide thereof, a nitride thereof, or niobium with at least one dopant, or wherein one or more of the milling balls are coated with niobium or are completely made of niobium. As disclosed at page 10 of the present application, for example, having the surfaces of the mill comprise niobium or an alloy thereof, an oxide thereof, a nitride thereof, or niobium with at least one dopant, or having one or more of the milling balls coated with niobium or completely made of niobium reduces the likelihood of contamination of a niobium or niobium-based material being milled.

In addition, with respect to such claims as claim 34, the Examiner has not at all provided a *prima facie* case of obviousness with respect to the subject matter. Claim 34 recites a very specific method for milling certain materials in a certain order to achieve particular particle sizes. None of the cited references alone or even combined teach the milling of various materials at various stages to achieve a co-milled product. Clearly, a *prima facie* case of obviousness for claim 34, and claims dependent on claim 34, or even the subject matter of claim 30 and the claims dependent thereon has not been established. For all of these reasons, the rejection should be withdrawn.


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**CONCLUSION**

In view of the foregoing remarks, the applicant respectfully requests the reconsideration of this application and the timely allowance of the pending claims.

If there are any other fees due in connection with the filing of this response, please charge the fees to Deposit Account No. 03-0060. If a fee is required for an extension of time under 37 C.F.R. § 1.136 not accounted for above, such extension is requested and should also be charged to said Deposit Account.

Respectfully submitted,

  
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